

Amendment Dated June 20, 2006

Reply to Office Action of February 22, 2006

**Amendments to the Claims:** This listing of claims will replace all prior versions, and listings, of claims in the application

Listing of Claims

1. - 20. (Cancelled)

21. (Currently Amended) The hinge mechanism of a portable phone comprising:

a third housing having a third rotary chamber with an opened top portion and a third hinge chamber formed at a side of the third rotary chamber, for mechanically connecting a cover to a body;

a third hinge part which is installed to the third hinge chamber, for opening and closing the cover; and

a third rotary part which is installed to the third rotary chamber, for rotating the cover,

wherein the third rotary part includes a third cylinder which opens at a lower portion and has a third cylinder chamber, which has a third cylinder hole formed in an upper portion thereof and a third arm projected from the upper portion thereof to be combined with the cover, and which has a third cylinder groove formed lengthwise thereon; a third compressed spring which is installed in the third cylinder chamber; a third rotary slip part which has a third rotary slip hole formed at a center portion thereof, ~~which has a third cylinder hole formed on an upper surface thereon and a third arm projected from an upper portion to be combined with the cover, and which a third cylinder groove formed lengthwise on an inner surface thereof~~; a third fixed slip part which has a third polygonal hole formed at a center portion thereof and which has a third fixed slip surface on an upper portion; and a third center shaft which has a third polygonal projection to be combined with the third polygonal hole, and which is installed at a bottom surface of the third rotary chamber to sequentially extend the third polygonal hole, the third rotary slip hole, the third compressed spring and the third cylinder hole.

22. (Previously Presented) The hinge mechanism of the portable phone according to claim 21, wherein a pair of third balls is installed on the third rotary slip surface to be opposite to each other about the third rotary slip hole while a pair of third hemispheric grooves is formed on the third fixed slip surface to face the pair of the third balls, and a third guide recess is formed to communicate with the third hemispheric grooves.

23. (Previously Presented) The hinge mechanism of the portable phone according to claim 21, wherein a pair of third balls is installed on the third fixed slip surface to be opposite to each other about the third fixed slip hole while a pair of third hemispheric grooves is formed on the third rotary slip surface to face the pair of the third balls, and a third guide recess is formed to communicate with the third hemispheric grooves.

24. (Previously Presented) The hinge mechanism of the portable phone according to claim 21, wherein a pair of third projections is installed on the third rotary slip surface to be opposite to each other about the third rotary slip hole while a pair of third hemispheric grooves is formed on the third fixed slip surface to face the pair of the third projections, and third guide recess is formed to communicate with the third hemispheric grooves.

25. (Previously Presented) The hinge mechanism of the portable phone according to claim 21, wherein a third cylinder projection is formed on an outer peripheral surface of the third cylinder, and a pair of third stoppers is formed on opposite inner surfaces of the third rotary chamber, to which the third cylinder projection is latched.

26. (Previously Presented) The hinge mechanism of the portable phone according to claim 21, wherein the third housing has a third cutoff portion through which a wire enters the third rotary chamber to electrically connect the cover to the body.

27. (Previously Presented) The hinge mechanism of the portable phone according to claim 21, wherein a third annular groove is formed at an end of the third center shaft, to which a third sealing is combined to fix the third cylinder to the third center shaft.

28. (Previously Presented) The hinge mechanism of the portable phone according to claim 21, wherein the third hinge chamber opens at a side thereof, which includes a third guide recess formed from the opened end to an interior thereof, and the third hinge part includes: a third hinge spring which is installed in the third hinge chamber; a third rotary hinge part which is inserted in the third hinge chamber to enclose the third hinge spring, which has a third rotary hinge hole formed at a center portion thereof, which has a third rotary hinge projection formed on an outer surface thereof to be combined with the third guide recess, and which has a third rotary hinge surface continuously and horizontally extending to the third rotary hinge hole while having two-wave type of bending when rotating each time; a third fixed hinge part which encloses the third hinge spring, which has a third fixed hinge hole corresponding to the third

rotary hinge hole, and which has a third fixed hinge surface formed on a side thereof to be corresponding to the third rotary hinge surface and a third fixed hinge projection formed on the other side thereof to be fixed to the body; and a third hinge shaft extending through the third fixed hinge hole, the third rotary hinge hole and the third hinge spring to be fixed to the third hinge chamber.

29. (Previously Presented) The hinge mechanism of the portable phone according to claim 21, wherein the third hinge chamber opens at a side thereof, which includes a third guide recess formed from an opened end to an interior thereof, and the third hinge part includes: a third hinge spring which is installed to the third hinge chamber; a third rotary hinge part which is inserted in the third hinge chamber to enclose the third hinge spring, which has a third rotary hinge hole formed at a center portion thereof, and which has a third rotary hinge projection formed on an outer surface to be combined to the third guide recess and a third plain rotary hinge surface; a third fixed hinge part which encloses the third fixed hinge part, which has a third fixed hinge hole corresponding to the third rotary hinge hole, and which has a third fixed hinge surface formed on a side thereof to be corresponding to the third rotary hinge surface and a third fixed hinge projection formed on the other side to be fixed to the body; and a third hinge shaft extending through the third fixed hinge hole, the third rotary hinge hole and the third hinge spring to be fixed to the third hinge chamber.

30. (Previously Presented) The hinge mechanism of the portable phone according to claim 21, wherein the third hinge chamber opens at a top portion thereof, which has a third hinge chamber hole formed at a side thereof and a third guide recess formed lengthwise on an inner surface, and the third hinge part includes: a third hinge spring which is installed in the third hinge chamber; a third rotary hinge part which is inserted in the third hinge chamber to enclose the third hinge spring, which has a third hinge spring hole formed at a center portion thereof, and which a third rotary hinge projection formed on an outer surface thereof to be combined with the third guide recess and a third rotary hinge surface formed at a side thereof; a third fixed hinge part which encloses the third fixed hinge part, which has a third fixed hinge hole corresponding to the third rotary hinge hole, and which has a third fixed hinge surface formed at a side thereof to be corresponding to the third rotary hinge surface and a third fixed hinge projection formed on the other side thereof to be fixed to the body; and a third hinge shaft extending through the third fixed hinge hole, the third rotary hinge hole and the third hinge spring to be fixed to the third hinge chamber.

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31. (Previously Presented) The hinge mechanism of the portable phone according to claim 21, wherein the third hinge chamber opens at a top portion thereof, which has a third hinge chamber hole formed at a side thereof and which has a third guide recess including a horizontal groove formed lengthwise on an inner surface thereof and a vertical groove being normal to the horizontal groove to be connected to the opening, and the third hinge part includes: a third hinge spring which is installed to the third hinge chamber; a third hinge part which is inserted in the third hinge chamber to enclose the third hinge spring, which has a third rotary hinge hole formed at a center portion thereof, and which has a third rotary hinge projection formed on an outer surface thereof to be combined to the third guide groove and which has a third rotary hinge surface formed at a surface; a third fixed hinge part which encloses the third fixed hinge part, which has a third fixed hinge hole corresponding to the third rotary hinge hole, and which has a third fixed hinge surface formed on a side thereof to be corresponding to the third rotary hinge surface and a third fixed projection formed on the other side to be fixed to the body; and a third hinge shaft extending through the third fixed hinge hole, the third rotary hinge hole and the third hinge spring to be fixed to the third hinge chamber.

32. (Currently Amended) The hinge mechanism of the portable phone according to claim 21, wherein the third hinge part includes: a third hinge housing which has a third hinge housing chamber with an opened top portion, which has a third guide groove formed lengthwise on a side wall thereof, ~~and which has a third hinge housing formed at a side thereof and a third hinge spring projection formed at the other side thereof~~; a third rotary hinge part which is installed to the third hinge housing, which has a third rotary hinge projection formed on an outer surface to be inserted in third guide recess and a third hinge hole formed at a center portion thereof, and which has a third rotary hinge surface continuously and horizontally extending to the third hinge hole while having two-wave type of bending when rotating each time; a third fixed hinge part which is rotatably installed to the third hinge housing, which has a third fixed hinge surface formed at a side thereof to be corresponding to the third rotary hinge surface, which has a third hinge shaft formed on the third fixed hinge surface to be inserted in the third rotary hinge hole, and which has a third fixed hinge projection formed at the other side thereof to be inserted in the third hinge housing hole; and a third hinge spring which is installed to the third hinge housing so that an end of the third hinge spring is combined to the third hinge spring projection and the other end elastically supports the second rotary hinge part.

33. - 67. (Canceled)

68. (Previously Presented) The hinge mechanism of the portable phone according to claim 21, wherein a camera lens is attached to an inner surface or outer surface of the cover to take a picture, and wherein a control switch is installed to a side of the body to control an operation of the camera lens.

69. (Previously Presented) The hinge mechanism of portable phone according claim 21, wherein a camera lens is attached to an inner surface or outer surface of the body to take a picture, and wherein a control switch is installed to a side of the body to control an operation of the camera lens.

70. (New) The hinge mechanism of a portable phone comprising:

a third housing having a third rotary chamber with an opened top portion and a third hinge chamber formed at a side of the third rotary chamber, for mechanically connecting a cover to a body;

a third hinge part which is installed to the third hinge chamber, for opening and closing the cover; and

a third rotary part which is installed to the third rotary chamber, for rotating the cover,

wherein the third rotary part includes a third cylinder which opens at a lower portion and has a third cylinder chamber, which has a third cylinder hole formed in an upper portion thereof and a third arm projected from the upper portion thereof to be combined with the cover, and which has a third cylinder groove formed lengthwise thereon; a third compressed spring which is installed in the third cylinder chamber; a third rotary slip part which has a third rotary slip hole formed at a center portion thereof; a third fixed slip part which has a third polygonal hole formed at a center portion thereof and which has a third fixed slip surface on an upper portion; and a third center shaft which has a third polygonal projection to be combined with the third polygonal hole, and which is installed at a bottom surface of the third rotary chamber to sequentially extend the third polygonal hole, the third rotary slip hole, the third compressed spring and the third cylinder hole, wherein a pair of third projections is installed on the third rotary slip surface symmetrically about the center thereof, while a pair of third hemispheric

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grooves is formed on the third fixed slip surface to face the third projections or vice versa, and the third guide recess is formed to communicate with the third hemispheric grooves.